

## Message Text

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ACTION ARA-10

INFO OCT-01 ISO-00 EB-07 EUR-12 SS-15 NSC-05 CIAE-00

INR-07 NSAE-00 TRSE-00 XMB-02 FPC-01 L-03 /063 W

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R 302032Z MAY 75

FM AMEMBASSY BUENOS AIRES

TO SECSTATE WASHDC 1356

USDOC WASHDC

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E.O. 11652: N/A

TAGS: BEXP, ENRG, EFIN, AR

SUBJECT: PARANA MEDIO HYDROELECTRIC PROJECT

REF: BA 3520

1. SUMMARY: VISIT BY EMBOFFS TO PARANA MEDIO SITE CONFIRMED THAT AGUA Y ENERGIA ELECTRICA (AYEE) IS PRESSING AHEAD WITH PROJECT. SIGNIFICANT ENGINEERING PROBLEMS REMAIN TO BE RESOLVED, AND THEIR RESOLUTION IS PERHAPS A BIT FURTHER AWAY THAN AYEE WOULD ADMIT. AYEE PLANS TO CARRY OUT FEASIBILITY AND ENGINEERING WORK ITSELF WITH ASSISTANCE OF INDIVIDUALLY CONTRACTED CONSULTANTS. FINANCING REMAINS AN IMPORTANT QUESTION MARK. EMBASSY BELIEVES CONSULTATIONS WITH U.S. SUPPLIERS TO DETERMINE THEIR INTEREST IN PROJECT SHOULD BEGIN ASAP. END SUMMARY.

2. AS A RESULT OF 24 HOUR VISIT TO SANTA FE, OVERFLIGHT OF PROPOSED SOUTHERN DAM SITE, AND EXTENSIVE DISCUSSIONS WITH AYEE LITORAL DIVISION ENGINEERS IN SANTA FE, EMBOFFS CAN REPORT THE FOLLOWING:  
AYEE ENGINEERS WORKING ON THE PARANA MEDIO PROJECT GAVE EVERY EVIDENCE OF BELIEVING THAT THIS PROJECT WILL FORGE AHEAD RAPIDLY. THIS STAFF, LOCATED IN THE CITY OF SANTA FE IN  
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SANTA FE PROVINCE, 25 KMS. BELOW THE DAM SITE,

APPEARS TO HAVE SUFFICIENT RESOURCES AT ITS DISPOSAL. THEIR STAFF HAS ALREADY REACHED 80 PROFESSIONALS AND IS STILL INCREASING.

3. FINANCING NEVERTHELESS REMAINS THE BIG QUESTION MARK. THE CURRENT PROJECT COST ESTIMATE, US\$ 2 BILLION, IS ALLEGEDLY BASED ON A VERY CONSERVATIVE CALCULATION, BUT IS OBVIOUSLY A VERY ROUGH ESTIMATE. PRECISE COST ESTIMATES WILL HAVE TO AWAIT THE SOLUTIONS TO CERTAIN TECHNICAL CONSTRUCTION PROBLEMS - SOLUTIONS WHICH ARE 18 MONTHS TO 2 YEARS AWAY YET. THIS PROJECT WILL HAVE TO COMPETE FOR DOLLAR FINANCING WITH YACIRETA-APIPE, ITAIPU, AND SALTO GRANDE, NOT TO MENTION OTHER SMALLER AND TECHNICALLY LESS COMPLICATED POWER PROJECTS BEING CONSIDERED BOTH IN ARGENTINA AND IN THE OTHER COUNTRIES OF THE RIVER PLATE BASIN. GOA OFFICIALS CONTINUE TO MAINTAIN THAT USSR HAS OFFERED TO FINANCE THE ENTIRE PROJECT. THIS SEEMS DOUBTFUL, THOUGH CONCEIVABLE.

4. THE KINDS OF TECHNICAL PROBLEMS WE HAVE PREVIOUSLY REPORTED GENERALLY STILL REMAIN, INCLUDING THE PROBLEM OF EROSION OF THE DIKE BY WAVE ACTION, THE PROBLEMS OF CONSTRUCTING THE SPILLWAY AND POWER PLANT ON A SAND FOUNDATION, THE PROBLEMS OF SEEPAGE AND EROSION CAUSED BY THE SAND BASE UNDERLYING THE STRUCTURES, AND OTHER LESSER TECHNICAL PROBLEMS. THERE IS EVIDENCE THAT AYEE IS ATTACKING THESE PROBLEMS SYSTEMATICALLY IN AN EFFORT TO COME UP WITH A VIABLE, YET REASONABLY ECONOMIC DESIGN. THE KEY MAN IN CHARGE OF THE PROJECT IS CHIEF ING. MARIO BERETTA, WHOSE OFFICE IS IN SANTA FE. (BERETTA AND THE LAHMEYER ENGINEERS APPARENTLY DID NOT SEE EYE-TO-EYE, WHICH SHOULD BE NOTED WHEN REFERRING TO BA 3405 AND THE LAHMEYER REPORT BEING POUCHED).

5. THE EXACT LOCATION OF THE SOUTHERN DAM HAS NOT BEEN FIXED. THE LENGTH ACROSS THE VALLEY WILL BE ABOUT 12 KMS., AND WILL EXTEND 200 KMS. UP RIVER ON THE WEST BANK. THE CURRENT SCHEDULE CALLS FOR THE FEASIBILITY STUDY ("ANTEPROYECTO") TO BE FINISHED IN MAY 1976 AND THE DESIGN ("PROYECTO") IN JULY 1977 SO AS TO CALL FOR BIDS AT THAT TIME. (THE LATTER DATE, PARTICULARLY, LIMITED OFFICIAL USE

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SEEMS OPTIMISTIC) BERETTA BELIEVES THAT THEY WILL BE READY TO TENDER CERTAIN PRELIMINARY WORK, SUCH AS WORKER HOUSING, ROADS AND PART OF THE LATERAL DIKE, APPROXIMATELY A YEAR FROM NOW (MAY 1976). THE TARGET DATE FOR STARTUP IS 1984.

6. IT NOW SEEMS CLEAR THAT THE DESIGN ENGINEERING FUNCTION WILL REMAIN THE RESPONSIBILITY OF AYEE. A SEPARATE ENGINEERING

CONTRACT IS NOT RPT NOT DESIRED, BUT AYEE WILL RETAIN CONSULTANTS AS IT SEES FIT, USUALLY ON AN INDIVIDUAL EXPERT BASIS. SOVIETS MAY RPT MAY PROVIDE SOME TECHNICAL ASSISTANCE IN THIS MANNER.

7. TWO TYPES OF TURBINES ARE BEING CONSIDERED FOR THE PROJECT: THE KAPLAN TURBINE, WHICH IS SEEN AS LESS EFFICIENT THAN THE ALTERNATIVE, THE SO-CALLED "BULB" TURBINE. BERETTA INDICATED THAT PRESENTLY HE WAS LEANING TOWARDS THE BULB TURBINE, PARTICULARLY SINCE THIS TYPE WAS MORE EFFICIENT FOR LOW HEAD PROJECTS. NEVERTHELESS, HE INDICATED THEY WERE CONCERNED ABOUT THE FACT THAT THE BULB TURBINE HAD NOT YET BEEN MANUFACTURED IN RATINGS REQUIRED BY THIS PROJECT (IF KAPLAN TURBINES ARE USED, THE POWER PLANT WILL INCLUDE SOME THIRTY TURBINES WITH AN 80 MW RATING EACH).

8. LATEST ESTIMATES AVAILABLE ON POWER OUTPUT, COST AND SAVINGS ON PETROLEUM ARE:

|                                       |                            |
|---------------------------------------|----------------------------|
| INSTALLED CAPACITY                    | 2,300 MW                   |
| GUARANTEED CAPACITY                   | 1,100 MW                   |
| MEAN ANNUAL OUTPUT                    | 14,900 MW                  |
| TOTAL COST                            | 2,000,000,000 U.S. DOLS    |
| TOTAL COST PER KW                     | 869.5 US\$/KW              |
| TOTAL COST PER KW HOUR                | 0.134 US\$/KWH             |
| ANNUAL USAGE                          | 6,480 HOURS                |
| SAVINGS OF PETROLEUM (VOL.)           | 3,060,000 CUBIC METERS     |
| SAVINGS OF PETROLEUM (VALUE)          | 306,000,000 DOLLARS        |
| PRESENT VALUE OF SAVINGS ON PETROLEUM | 3,525,000,000 U.S. DOLLARS |

9. AT THIS STAGE, ING. BERETTA'S GROUP IS MOST INTERESTED IN INFORMATION FROM U. . MANUFACTURERS CONCERNING DEVELOPMENTS IN THE LARGEST SIZES OF BOTH KAPLAN AND BULB TURBINES AND IN LARGE SIZES OF ALL KINDS OF EARTH MOVING AND DREDGING LIMITED OFFICIAL USE

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EQUIPMENT. THEY ALSO SEEK INFO ON DESIGN AND CONSTRUCTION OF LOCKS. LOCAL REPS OF TURBINE MANUFACTURERS CAN PROVIDE DATA ON THIS EQUIPMENT. ACTION REQUESTED: WOULD APPRECIATE INFO FROM USDOC SOONEST ON COMPANIES IN U.S. EXPERIENCED IN DESIGNING AND CONSTRUCTING LOCKS AS WELL AS ANY TECHNICAL LITERATURE ON HAND ON SAME SUBJECT.

10. WE WOULD LIKE TO POINT OUT ONCE MORE THAT, WE BELIEVE THE TIME HAS COME TO PUT THE GOA INTO DIRECT CONTACT WITH U.S. FIRMS OR CONSORTIUM OF U.S. FIRMS ON THIS PROJECT. ACCORDINGLY, EMBASSY AGAIN RECOMMENDS THAT USDOC AND EMBASSY INITIATE CONTACTS WITH U.S. FIRMS ASAP TO THIS END.  
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## Message Attributes

**Automatic Decaptioning:** X  
**Capture Date:** 01 JAN 1994  
**Channel Indicators:** n/a  
**Current Classification:** UNCLASSIFIED  
**Concepts:** CONSTRUCTION, HYDROELECTRIC POWER PLANTS, VISITS  
**Control Number:** n/a  
**Copy:** SINGLE  
**Draft Date:** 30 MAY 1975  
**Decaption Date:** 01 JAN 1960  
**Decaption Note:**  
**Disposition Action:** RELEASED  
**Disposition Approved on Date:**  
**Disposition Authority:** woolflhd  
**Disposition Case Number:** n/a  
**Disposition Comment:** 25 YEAR REVIEW  
**Disposition Date:** 28 MAY 2004  
**Disposition Event:**  
**Disposition History:** n/a  
**Disposition Reason:**  
**Disposition Remarks:**  
**Document Number:** 1975BUENOS03693  
**Document Source:** CORE  
**Document Unique ID:** 00  
**Drafter:** n/a  
**Enclosure:** n/a  
**Executive Order:** N/A  
**Errors:** N/A  
**Film Number:** D750191-0430  
**From:** BUENOS AIRES  
**Handling Restrictions:** n/a  
**Image Path:**  
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**Legacy Key:** link1975/newtext/t1975052/aaaaabmx.tel  
**Line Count:** 168  
**Locator:** TEXT ON-LINE, ON MICROFILM  
**Office:** ACTION ARA  
**Original Classification:** LIMITED OFFICIAL USE  
**Original Handling Restrictions:** n/a  
**Original Previous Classification:** n/a  
**Original Previous Handling Restrictions:** n/a  
**Page Count:** 4  
**Previous Channel Indicators:** n/a  
**Previous Classification:** LIMITED OFFICIAL USE  
**Previous Handling Restrictions:** n/a  
**Reference:** 75 BA 3520  
**Review Action:** RELEASED, APPROVED  
**Review Authority:** woolflhd  
**Review Comment:** n/a  
**Review Content Flags:**  
**Review Date:** 03 SEP 2003  
**Review Event:**  
**Review Exemptions:** n/a  
**Review History:** RELEASED <03 SEP 2003 by BoyleJA>; APPROVED <19 DEC 2003 by woolflhd>  
**Review Markings:**

Margaret P. Grafeld  
Declassified/Released  
US Department of State  
EO Systematic Review  
05 JUL 2006

**Review Media Identifier:**  
**Review Referrals:** n/a  
**Review Release Date:** n/a  
**Review Release Event:** n/a  
**Review Transfer Date:**  
**Review Withdrawn Fields:** n/a  
**Secure:** OPEN  
**Status:** NATIVE  
**Subject:** PARANA MEDIO HYDROELECTRIC PROJECT  
**TAGS:** BEXP, ENRG, EFIN, AR  
**To:** STATE COM  
**Type:** TE  
**Markings:** Margaret P. Grafeld Declassified/Released US Department of State EO Systematic Review 05 JUL 2006